DOCUMENT RESUME

ED 206 263 IR 009 380

AUTHOR Newman, Joan A.
TITLE Television in the Classroom: What the Research Says.
INSTITUTION Washington Office of the State Superintendent of Public Instruction, Olympia. Div. of Instructional and Professional Services.
PUB DATE [1 Apr 81]
NOTE 18p.

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Broadcast Television; Case Studies; *Cognitive Development; *Educational Television; History; Instructional Development; *Program Effectiveness; Summative Evaluation; Teacher Characteristics; Teacher Effectiveness; *Television Research; *Television Viewing

ABSTRACT

This paper reviews the findings of research on the teaching effectiveness of both instructional and open broadcast television since 1968, pointing out that the presence of a mentor who shares in the viewing and discusses what is seen with the child is a critical factor in what a child will learn. Discussion is divided into research prior to 1975: recent research thrusts; characteristics of effective instructional television programs, viewing, and planning for teaching; the research production (formative evaluation) approach; related research into teaching design; research on the effects of commercial television; and the implications of research findings for teachers. Seven case studies are presented in chart form from a series of 15 examining the cognitive and attitudinal effects on students and teachers of using the Trade-offs instructional television series to teach economics in grades five and six. A bibliography of 37 items is divided into research prior to 1975, recent research thrusts, the Research Production Approach, and related research into teaching design. (CHC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

DISSEMINATION PROJECT

KNOW·NET

Monica Schmidt, Asst. Superintendent
Division of Instructional
and Professional Services
Jean Wieman, Director
Programs and Learning Resources

Joan Newman, Project Director
(206) 753-6723

Sue Collins, Project Coordinator
(206) 753-2858

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

ED206263

TELEVISION IN THE CLASSROOM:

WHAT THE RESEARCH SAYS

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

F. Brouillet

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

IR009380

DR. FRANK B. BROUILLET
STATE SUPERINTENDENT
OF PUBLIC INSTRUCTION
OLYMPIA, WA 98504

TELEVISION IN THE CLASSROOM: WHAT THE RESEARCH SAYS

OVERVIEW:

The teaching effectiveness of both instructional television (programs designed for classroom use) and open broadcast television (programs designed for general viewing) is well documented by over twenty years of research. A critical factor in what a child will learn from television, both in and out of the classroom, is the presence of a mentor (teacher, parent) who shares in the viewing and discusses what is seen with the child. These findings provide the best evidence for support of school programs which use television as part of the regular instructional program.

Research Prior to 1975

By the mid-1970's, landmark studies by the Children's Television Workshop and twenty years of pre-test/post-test studies of instructional television had established the capacity of television to teach. Success with this medium of instruction has been documented with pre-schoolers, K-12 students, college students and adults, both those who are enrolled in courses where television is used and those who view it in non-school settings, at home or in the community.

The famous "Sesame Street" studies, conducted by the Children's Television Workshop from 1968 - 1973, supported a conclusion that the program taught pre-schoolers the skills intended to be taught (numbers, letter forms, classification, problem-solving) and developed favorable viewer attitudes intended to be developed, such as positive attitudes toward people of other races. Furthermore, those children who watched most gained most. Incidentally, children whose mothers watched with them watched most.

Summing up other research, communications expert Wilbur Schramm and others concluded in a 1975 study by the Stanford Institute for Communications Research, "Given favorable conditions, children learn efficiently from instructional television...the effectiveness of television has now been demonstrated in well over 100 experiments, and several hundred separate comparisons, performed in many parts of the world, in developing as well as industrialized countries, at every level from pre-school through adult education and with a great variety of subject matters and method." This research includes studies demonstrating specific success with ethnic minority and handicapped children.

Predictably, television has not demonstrated ability to cure all the ills its promoters had hoped it would. For instance, "Sesame Street" has not been able to counteract the effects of poverty in educating pre-schoolers as well as Head Start has. Greatest gains from viewing "Sesame Street" have been made by middle class children. However, a preponderance of "Sesame Street" studies have shown the series has a positive impact on poverty children.

Likewise, outside factors such as variations in learners' motivation and independence have not been overcome by television in programs designed to prepare adults to pass the GED test for high school equivalency. And some bilingual children's shows have not been found effective.

Recent Research Thrusts

As the teaching capacity of television became established, new research concentrated on the variables affecting the degree of success with which the medium could be used. Both characteristics of successful programs and optimum conditions for learning from television were documented. This collection of variables, while confusing to those still seeking either/or answers to the questions of comparative effectiveness, describes more realistically what causes students to learn from given programs viewed in particular contexts. Among these variables accounting for successful learning from television are the following:

Characteristics of Effective Instructional Television Programs:

Intructional television programs produce significant gains in student achievement when they:

--repeat the key concepts a variety of ways.

--make use of animation, novelty, variety and simple visuals (for young children).

--entertain as well as inform.

--make use of a trained communicator in presenting information (for adults: make use of nationally known personalities)

--provide opportunities for students to participate in a learning activity, either in response to information presented in the program or as part of a game presented by the program (for young children).

--match the length of the program to the attention span of the intended audience.

--follow principles of effective audiovisual presentations.

--reflect the use of formative evaluation during production, in the following ways:

Curriculum goals for the program are established by educators, who participate in the program planning on an equal footing with the producers.

Programs are field tested to determine the effectiveness of presentation techniques with students who represent the intended audience for the program.

Characteristics of Effective Instructional Television Viewing:

Students show gains in achievement from viewing instructional television when teachers:

--prepare students to receive information presented by the television program.

--provide reinforcing discussion and activities following viewing.

--provide corrective feedback to students, based on what students reveal they have understood from the program, in follow-up discussions between students and teacher.

--provide students with frequent feedback on their achievement as a result of viewing.

--maintain sufficient contact with students during instruction via television (for college students).

--assume an active role in the instruction which accompanies viewing television programs.

Characteristics of Effective Planning for Teaching with Instructional Television:

Planning for effective teaching with instructional television includes:

--selecting programs which accommodate the teacher's classroom management style.

--selecting broadcast times which meet classroom needs.

--incorporating television as part of a coordinated instructional system, including teacher presentation, text, study guide and testing for achievement gains.

--using television programs when that which is to be learned requires visualizing, and continuity of action is important to the lesson.

--using television when reducing student anxiety is a priority (capitalizing on the third person, non-judgmental nature of the medium).

The "Research Production" Approach

These and other variables have been studied extensively by Children's Television Workshop and subsequently by such organizations as the Agency for Instructional Television, Great Plains National Television, Children's Television International, and others, using the "research production" (or formative evaluation) approach to program development. This approach relies on the efficacy of on-going, in-process evaluation, field-testing and revision to develop broadcast/videotaped programs that will teach effectively. In producing the current "Think About" series, for instance, AIT conducted pilot tests of the first ten percent of the programming completed, to determine the instructional effect of elements in each cluster of programs, in terms of content, organization, appeal or affect, production techniques and accompanying teacher actions.

The "research production" approach resulted in programs and teacher guides which therefore have been well studied, revised and validated by developers, producers and users during the development of the programming itself. AIT, for instance, was able to demonstrate, while the "Think About" series was still in production, that fifth and sixth graders' "cognitive structure" related to a concrete information-gathering task was changed and sharpened after viewing a cluster of Think About programs and participating in the recommended pre and post viewing activities. Students in Central Valley and Cheney School Districts in this state took part in this field-testing.

Related Research Into Teaching Design

The "research production" approach has logically included investigations into related aspects of the teaching situation which will affect how the programs will be used, such as the way in which teachers select broadcast/videotaped materials, the ways teachers plan lessons which will use broadcast/videotaped materials, and the effect of teacher in-service on student learning from these materials.

Findings include:

(1) Teachers select materials for their compatibility with the teachers' own classroom management styles and for the materials' ability to "engage the interests and energies of students, to "gain and maintain the cooperation of students in activities that fill the classroom time."
(2) Teachers select materials which will require reasonable prep time.
(3) Teachers plan lessons FROM materials, rather than selecting materials to meet given instructional objectives.
(4) Teachers integrate television in those lessons with other classroom activities, before and after viewing.
(5) Teachers and administrators agree that the greatest potential of televised instruction is to bring new information and people into the classroom.
(6) Factors influencing use of broadcast/videotaped materials are: student liking for programs, educational value of programs and easy access to reliable equipment.
(7) In-service for teachers on the ways to use specific programs can improve student learning from those programs.

As teachers plan the incorporation of television into classroom lessons, commercial television, as a nearly universal experience of teachers and students alike, quite naturally enters the instructional picture. Growing interest in using television in the classroom has focused on the use of commercial television programs as a basis for teaching reading, writing, economics skills and analytical or viewing skills. The best known research-based attempts to build instruction in these areas are Rosemary Potter's Television Reading Program, Prime Time School Television, and Critical Television Viewing Skills Project, each of which has been extensively field tested in educational settings.

Research on Effects of Commercial Television

Meanwhile, public realization that the medium is an effective teacher has led to great popular concern over the impact of open broadcast television, especially on children, especially in the portrayal of violence and conflicting social values. Following studies for the U.S Surgeon General, published in 1972 which found negative effects on television violence, much research concentrated on identifying and classifying behaviors which follow viewing of violence, and on identifying elements of the viewing situation which affect children's response to viewing violence.

Findings generally supported the influence of television on behavior, especially in the absence of controls on viewing and particularly when viewing is the sole or major source of information about the behavior in question. Corollary research with adults has indicated that heavy viewers' perception of the world around them is influenced by television's portrayal of it, so that violence on "prime time" network television increases the assumption of danger on the part of heavy viewers. Similar concerns have been raised consistently over the instructional effect of stereotyping in television drama and other entertainment shows.

However, findings also suggest strongly that children's interpretation of behavior they see on television is greatly influenced by what adults, such as parents and teachers, have to say about it. Television influences most in the absence of other contrary, influences and teaches better when both the televised message and the message to children from adults reinforce each other.

Implications for Teachers

For many teachers, public emphasis and resulting research showing television's negative effects has provided a rationale for avoiding the use of television in the classroom. For other teachers, the spotlight on commercial television's impact has meant new programs and materials to use in the classroom. Networks have responded to negative press (and the growth of educational television programming with wide public appeal) by producing teachers' guides for those programs network officials hope will be seen advancing school curriculum goals. Best known of these efforts is the Teachers Guides to Television, published by NBC. The most significant research is that which for still other teachers, and parents as well, indicates that they are a key factor in what their students or children will learn from television, in or out of the classroom, subject to the degree and skill of their interventions.

The prevalence of this message in the research on television can be traced through most of what has been discussed in this summary. Sesame Street studies indicated that children who viewed most learned most; children whose mothers watched with them watched more than other children did. Variables contributing to the success of other instructional television programs included: Provision for active student response (presumably in the classroom setting); directed participation; corrective feedback; student attention focused on essential learning from viewing; sufficient faculty contact; teacher assuming active role; re-inforcing discussion and activities as follow-up to viewing; television incorporated as part

of a coordinated instructional system. "Research production" design routinely includes teacher-led activities and follow-up as part of program development. Analysis of teacher behavior in selecting and using broadcast/videotaped programs reveals that teachers look for those materials which will enlist student cooperation in classroom activity and will integrate with other instructional plans for the day's work. And finally, intervention by an authoritative adult is found to be a key factor in what children learn from those television programs most worrisome in terms of the influence they may have on children's behavior.

Related Research Topics:

Right brain-left brain spheres of learning
Learning styles; cognitive styles
Differences in utilization between film and videotape
Learning over distance; extension learning
Technology and learning
Instructional/educational/public television and public policy
Role models in instructional television

ERIC Descriptors Used in Computer Searching Portions of this Research Synthesis:

Educational television
Television research
Program effectiveness
Cognitive development
Think About
Summative evaluation

Synthesis by:

Joan A. Newman, Ph.D.
Program Administrator
Learning Resources
Director, KNOW-NET Project
Superintendent of Public Instruction
Division of Instructional and
Professional Services

April 1, 1981

A Research Case Study

Impact of the Trade-offs instructional television series on teaching and learning of economics in grades five and six.

Fifteen studies were conducted in classrooms in the United States and Canada from 1978 to 1980, to examine the cognitive and attitudinal effects of Trade-offs on students and teachers. These studies support the following conclusions about the impact of Trade-offs:

1) The series significantly improves students' knowledge of and attitudes toward economics.
2) The series significantly improves teachers' attitudes toward economics.
3) Student cognitive and attitudinal gains were further increased with teacher in-service training.
4) Teacher attitudinal gains were further increased with in-service education.
5) The series is appealing to students, teachers, and administrators.

A selection of the studies with the largest test populations is presented in the chart below.

PRINCIPAL AUTHOR/LOCATION	SAMPLE SIZE	DESIGN/METHOD	VARIABLES	INSTRUMENTS	FINDINGS
William Walstad St. Louis Missouri	Students=563 (fifth and sixth graders) Teachers=24	Non-equivalent control group design	1)Trade-Offs effects on students' economic knowledge and attitudes. 2)In-service training of teachers for Trade-Offs use and its effects on student economic knowledge and attitudes. 3)Multiple regression controlled for age, sex, achievement score, pre-test economic understanding and pre-test attitude toward economics.	Test of Elementary Economics (TEE), Investigator-developed semantic differential for attitude scale.	Both experimental groups (viewing Trade-Offs) showed significant improvement over control groups (not viewing Trade-Offs) in economic understanding and attitudes toward economics. These gains were further increased with teacher in-service training.
Steve Van Bockern Sioux Falls, South Dakota	Students=505 (sixth graders) Teachers=21	Experimental: pre test/treatment/post test Control: pre test/post test	1)Trade-Offs effects on student and teacher economic knowledge and attitude. 2)The effects of in-service training for Trade-Offs use on student and teacher economic knowledge and attitudes. 3)Multiple regression controlled for: student pre-test attitudes and knowledge, reading scores, IQ, teacher post-economic preparation, sex, socio-economic background.	Student: Trade-Offs Student Evaluation, Investigator-developed student's Economic Attitude Survey. Teacher: Questionnaire of Economic Understanding Test of Economic Literacy.	1)Trade-Offs alone, with no follow-up activities or discussion, had a significant, positive effect on students' economic attitudes and knowledge. 2)Student gains in economic understanding and knowledge were further increased with teacher in-service training and follow-up activities. 3)Trade-Offs alone produced significan positive gains in teachers' attitudes toward economics. These gains were further increased with in-service training.

PRINCIPAL AUTHOR/LOCATION	SAMPLE SIZE	DESIGN/METHOD	VARIABLES	INSTRUMENTS	FINDINGS
					4)Neither Trade-Offs alone nor in conjunction with the in-service workshop had a measurable effect on teachers' knowledge of economics.
William Rohrer Washoe County Schools, Nevada	Students=218 (sixth graders) Teachers=8	Non-equivalent control group design	1)Trade-Offs effects on economic understanding. 2)The effects of economic understanding on problem-solving ability. 3)Trade-Offs effects on student attitudes toward free market, free enterprise, and big business.	Trade-Offs Test. Adaptation of Measuring Problem Solving Skills and Processes in Elementary School Children. Adaptation of Walstad's semantic differential instrument used to measure attitudes.	1)Trade-Offs significantly improved students' economic understanding. 2)Trade-Offs significantly increased positive attitudes toward free market and free enterprise, but did not change attitudes toward big business. 3)The results when examining the effects of economic understanding on problem-solving ability were inconclusive: analysis of covariance revealed no significant differences while a multiple regression analysis revealed a significant regression coefficient.
Jack Chizmar 56 school districts throughout the United States	9000 students (grades 4-6)	Data gathered in the process of validating an achievement test for economics (Basic Economics Test).	1)Trade-Offs cognitive effects compared to other instruction. 2)Length of instruction when Trade-Offs is used compared to other instruction.	Basic Economic Test	Students receiving Trade-Offs instruction performed significantly better than students receiving other instruction. Students receiving Trade-Offs instruction also received significantly more instruction.

PRINCIPAL AUTHOR/LOCATION	SAMPLE SIZE	DESIGN/METHOD	VARIABLES	INSTRUMENTS	FINDINGS
James Roleke Kansas City, Missouri	Students=1400 (mostly fifth grade)	Pre test/treatment/post test	Trade-Offs effects on students' economic knowledge.	Test of Economics in Trade-Offs.	Trade-Offs use increased student scores by 18%.
James Roleke Kansas City, Missouri	Students=1206 (mostly fifth grade students)	Survey	Trade-Offs' appeal to students.	Investigator-developed survey.	1)The students indicated they enjoyed the series and thought they had learned a lot about economics. 2)Over half (52%) said some of the programs were too difficult for them.
James Roleke Kansas City, Missouri	Teachers=42	Survey	Trade-Offs' appeal to teachers.	Investigator-developed survey.	1)The overwhelming majority of teachers (98%) indicated the series was an effective instructional tool. 2)Over a third (36%) said some of the programs were too difficult for fifth grade students.

Reprinted with permission of the Agency for Instructional Television

REFERENCES

RESEARCH PRIOR TO 1975

Boyd, Charles H., Khan Du: "A Success Model Through Television for the Career Education of Handicapped Children," Office of Career Education, DHEW/OE, Washington, D.C., 1974, (ERIC ED 183 874)

Chu, Godwin C and Wilbur Schramm, "Learning From Television: What the Research Says," revised edition, NAEB, Washington, D.C., 1975 (ERIC ED 109 985)

"Community Education Comprehensive GED Strategies," Morehead State University, Kentucky, 1975 (ERIC ED 154 105)

Cooney, Joan Ganz, "Sesame Street at Five: The Changing look at a Perpetual Experiment," Children's Television Workshop, New York, 1974 (ERIC ED 122 804)

"Graphics Expression Reading Improvement System," Evaluation Report, New York State Department of Education, Albany, N.Y., 1974 (ERIC ED 088 493)

Harvey, Francis and others, "Evaluation of Eight 'Infinity Factory' Programs," Educational Development Center Inc., Newton, MA, 1976 (ERIC ED 129 329)

Henderson, Ronald W. and Rosemary Swanson, "The Effects of Televised Skill Instruction, Instructional System Support and Parental Intervention on the Development of Cognitive Skills," University of Arizona, 1977 (ERIC ED 148 379)

Springle, Herbert A., "Who Wants to Live on Sesame Street?" Learning to Learn, Inc., Jacksonville, Florida, 1972 (ERIC ED 066 221)

RECENT RESEARCH THRUSTS

Barbatsis, Gretchen Schoer, "The Nature of Inquiry and Analysis of Theoretical Progress in Instructional Television from 1950-1970," Review of Educational Research, Vol. 48, No. 3, pp. 399-414. Summer, 1978

Brown, Lawrence A., "Accounting I (First Offering) Course Evaluation Report," University of Mid-America, Lincoln, NE, 1975 (ERIC ED 159 970)

Callis, Carolyn and Lois E. Dickay, "Interactive Effects of Achievement Anxiety, Academic Achievement and Instructional Mode on Performance and Course Attitude, "Home Economics Research Journal, Vol. 8, No. 3, January, 1980, pp. 216-27. (ERIC EJ 219 198)

Chu and Schramm

Cook, Thomas D. and others, "'Sesame Street' Revisited," Russell Sage Foundation, New York, 1975 (ERIC ED 112 862)

Cooney

Dwyer, Francis M., "A Guide for Improving Visualized Instruction," Learning Services, State College, PA, 1972 (ERIC ED 067 818)

Henderson, Ronald W. and Rosemary Swanson, "Age and Directed-Participation Variables Influencing the Effectiveness of Televised Instruction in Concrete Operational Behaviors, Educational Communication and Technology, Vol. 24, No. 4, Winter, 1978, pp. 302-12. (ERIC EJ 198 294)

McElreath, Mark P., "Developing a Strategy for Adult Education Via Mass Media," Adult Education, Vol. 25, No. 1, February, 1974, pp. 23-33. (ERIC EJ 105 506)

O'Bryan, K.G. and Others, "Quest into Matter. Final Report," Ontario Educational Communications Authority, Toronto, 1975 (ERIC ED 116 690)

Purdy, Leslie, "Telecourse Students: How Well Do They Learn?" April, 1978 (ERIC ED 154 851)

Smith, Karen, "Project 'Freestyle': Ad Hoc: Fast Turn Around Evaluation," International Communication Association, 1978 (ERIC ED 157 106)

Taylor, William D., "Teachers and Materials: The Selection Process" Secondary School Video: A Facilitator's Guide, Agency for Instructional Television, Bloomington, IN, 1980, pp. E1-E8

Wardwell, Douglas O., "A Study of the Effects of a Trained Television Communicator on Undergraduate Attitudes and Learning," Nova University, Fort Lauderdale, Florida, 1975 (ERIC ED 134 209)

THE "RESEARCH PRODUCTION APPROACH"

"A Summary of the 'Think About' Cluster Evaluation: Collecting Information," Agency for Instructional Television, Bloomington, IN, April, 1979.

Barbatsis

Jochums, Brenda and Others, "Assessing the Content of Instructional Television Programs for Use in Formative Evaluation," American Educational Research Association Convention, San Francisco, 1979 (ERIC ED 176 799)

Sloan, Kay Robinson, Thinking Through Television, Agency for Instructional Television, Bloomington, IN, 1980.

RELATED RESEARCH INTO TEACHING DESIGN

Butler, Matilda, "Sex Stereotyping in Instructional materials and television: Awareness Kit," Women's Educational Equity Communications Network, San Francisco, 1978.

Comstock, George, "Trends in the Study of Incidental Learning from Television Viewing," ERIC Clearinghouse on Information Resources, Syracuse, NY, 1978.

Dirr, Peter J. and Ronald J. Pedone, "Uses of Television for Instruction, 1966-77. Final Report of the School TV Utilization Study," Corporation for Public Broadcasting, (USDHEW) pp. 5-6.

Gerbner, George and Larry Gross, "The Scary World of TV's Heavy Viewer," Psychology Today, April, 1976, pp. 41-5.

Hausman, Louis, "Education Through Commercial Television," Television Information Office, National Association of Broadcasters, New York, 1962.

Perkins, Bryce, "Education in the Video Age," Screen and Society, Nelson-Hall, Chicago, 1979, pp. 109-130.

Potter, Rosemary, "The Link Between Reading Instruction and Commercial Television: Is This a Bandwagon?" Journal of Reading, Vol. 24, No. 5, February, 1981.

"Resources for Television in Education: RRS Mini-List," National Center for Research in Vocational Television, Ohio State University, 1980.

Shea, James Paul, "The Impact of Trade-offs: What the Research Says," Agency for Instructional Television, Bloomington, IN, 1980.

Singer, Jerome L. and Dorothy G. Singer, "Enhancing Imaginative Play in Preschoolers: Television and Live Adult Effects," Yale University, New Haven, CT, 1974 (ERIC ED 100 509)

Taylor

Window Dressing on the Set: Women and Minorities in Television, U.S. Commission on Civil Rights, Washington, D.C., 1977.

See "Resources for Television in Education"

I011F8.00